

---

Special Management Area Use Permit and  
Shoreline Setback Variance Application

**Area D:**  
**Keehi Lagoon Beach Park**

**Honolulu Rail Transit Project**  
June 2013

---

APPLICATION MATERIALS  
Area D: Ke'ehi Lagoon Beach Park

I. GENERAL INFORMATION

**A. Applicant (Name, Address, Phone)**

Honolulu Authority for Rapid Transportation  
1099 Alakea Street, Suite 1700  
Honolulu, HI 96813  
(808) 768-6159

**B. Recorded Fee Owner (Name, Address, Phone)**

Within the Area D: Ke'ehi Lagoon Beach Park portion of the Project, the fixed guideway is being constructed within three parcels.

- (1) 1-1-003:006: Owned by the State of Hawaii  
Department of Land and Natural Resources  
1151 Punchbowl Street  
Honolulu, HI 96813
- (1) 1-1-003:004: Owned by the State of Hawaii  
Department of Land and Natural Resources
- (1) 1-1-003:138: Owned by the State of Hawaii  
Department of Land and Natural Resources
- (1) 1-1-003:003: Owned by the State of Hawaii  
Department of Land and Natural Resources

The Area D: Ke'ehi Lagoon Beach Park portion of the Project is restricted to the portion of the Project that will be built within the SMA, in Ke'ehi Lagoon Beach Park. In addition, other Project features will be built mauka of the SMA boundary, just outside and adjacent to/abutting the SMA (Attachment D). The City will acquire three parcels directly adjacent to the Area D: Ke'ehi Lagoon Beach Park area for the construction of the guideway and a station.

- (1) 1-1-016:005: Owned by 2676 Waiwai Loop, LLC  
P.O. Box 29177  
Honolulu, HI 96820
- (1) 1-1-016:006: Owned by Alert Holdings Group, Inc.  
2668 Waiwai Loop  
Honolulu, HI 96819
- (1) 1-1-016:014: Owned by Chevron USA, Inc.  
P.O. Box 285  
Houston, TX 77001

The Project will also acquire portions of three parcels that abut the SMA – (1) 1-1-016: 007, 012, and 013; however, the portions of these parcels to be acquired by the Project do not abut the SMA.

**C. Agent**

Honolulu Authority for Rapid Transportation  
1099 Alakea Street, Suite 1700  
Honolulu, HI 96813  
(808) 768-6159

**D. Tax Map Key**

Project features will be built on the following current Tax Map Keys (TMKs) within the Area D: Ke'ehi Lagoon Beach Park portion of the Project. The portions of these parcels on which Project features will be built will be acquired by the City and designated as right-of-way (ROW).

- (1) 1-1-003:006: Project ROW requirements will result in a strip take 50 feet wide for 1,150 linear feet within this TMK, which will result in a total Project acquisition of approximately 57,500 square feet, or 1.32 acres; the total land area is 69.171 acres.
- (1) 1-1-003:004: Project ROW requirements will result in a strip take 30 feet wide for 400 linear feet within this TMK, which will result in a total Project acquisition of approximately 12,000 square feet, or 0.28 acre; the total land area is 11.087 acres.
- (1) 1-1-003:138: Project ROW requirements will result in a strip take 20 feet wide for 300 linear feet within this TMK, which will result in a total Project acquisition of approximately 6,000 square feet, or 0.14 acre; the total area is 4.967 acres.
- (1) 1-1-003:003: Project ROW requirements will result in a strip take up to 20 feet wide for roughly 300 linear feet within this TMK, which will result in a total Project acquisition of approximately 5,000 square feet, or 0.11 acre; the total land area is 5.166 acres.

The City will also acquire three parcels directly adjacent to the Area D: Ke'ehi Lagoon Beach Park area for the construction of the guideway, support facilities and a station.

- (1) 1-1-016:005: the Project will require a full take of this parcel for the guideway; the total land area is 0.57 acre.
- (1) 1-1-016:006: the Project will require a full take of this parcel for the guideway; the total land area is 0.53 acre.
- (1) 1-1-016:014: the Project will require a full take of this parcel for the Lagoon Drive station; the total land area is 0.65 acre.

**E. Lot Area**

Please see Item D above.

**F. Agencies Consulted in Making Assessment**

Please see the Introduction to this SMA Use Permit Application for the agencies consulted, and Attachment 2 to this Application for copies of correspondence. Some of the public outreach activities listed took place in the immediate area of the Area D: Ke'ehi Lagoon Beach Park portion of the Project. This included public meetings at Aliamanu Elementary School.

## II. DESCRIPTION OF THE PROPOSED ACTION

### A. General Description

A National Environmental Policy Act (NEPA) and Hawai'i Revised Statutes (HRS) Chapter 343 compliant Final Environmental Impact Statement (EIS) has been prepared for the Project. The information herein is drawn from the preparation of the Final EIS, including supporting technical reports referenced within it that include detailed information concerning the studies performed to support the Final EIS.<sup>1</sup>

#### 1. Brief Narrative Description of Entire Proposed Project

The Introduction to this SMA Application provides a description of the entire proposed Project. The Final EIS (Attachment 1), Sections 2.4 and 2.5, provide more detailed information.

#### 2. Relation of Project to Special Management Area

This package discusses the Area D: Ke'ehi Lagoon Beach Park portion of the Project. The discussion focuses on Project facilities that will be within the SMA. The Area D: Ke'ehi Lagoon Beach Park portion of the Project extends from where the Project enters Ke'ehi Lagoon Beach Park (Project Station 1217+60) to Makai Frontage Road (Project Station 1241); this is 2,340 linear feet (0.44 mile) of the overall 20-mile alignment. Based on Preliminary Engineering designs, the following features are planned to be built within the SMA. Items may change slightly as the design progresses from a preliminary design stage to final design.

1. Approximately 2,340 linear feet of elevated guideway supported by about 18 columns and associated civil, utility, drainage, and landscaping improvements. See Attachment D, Drawings D1-D4.
2. 1,850 linear feet of ROW acquisition, varying from 20 to 50 feet wide for a total take of approximately 75,500 square feet, or 1.74 acres.

In addition to the Project features within the SMA, other Project features are adjacent to or abutting the SMA. These adjacent/abutting features are also illustrated on figures in Attachment D, and are discussed in this package to a lesser degree. These features include:

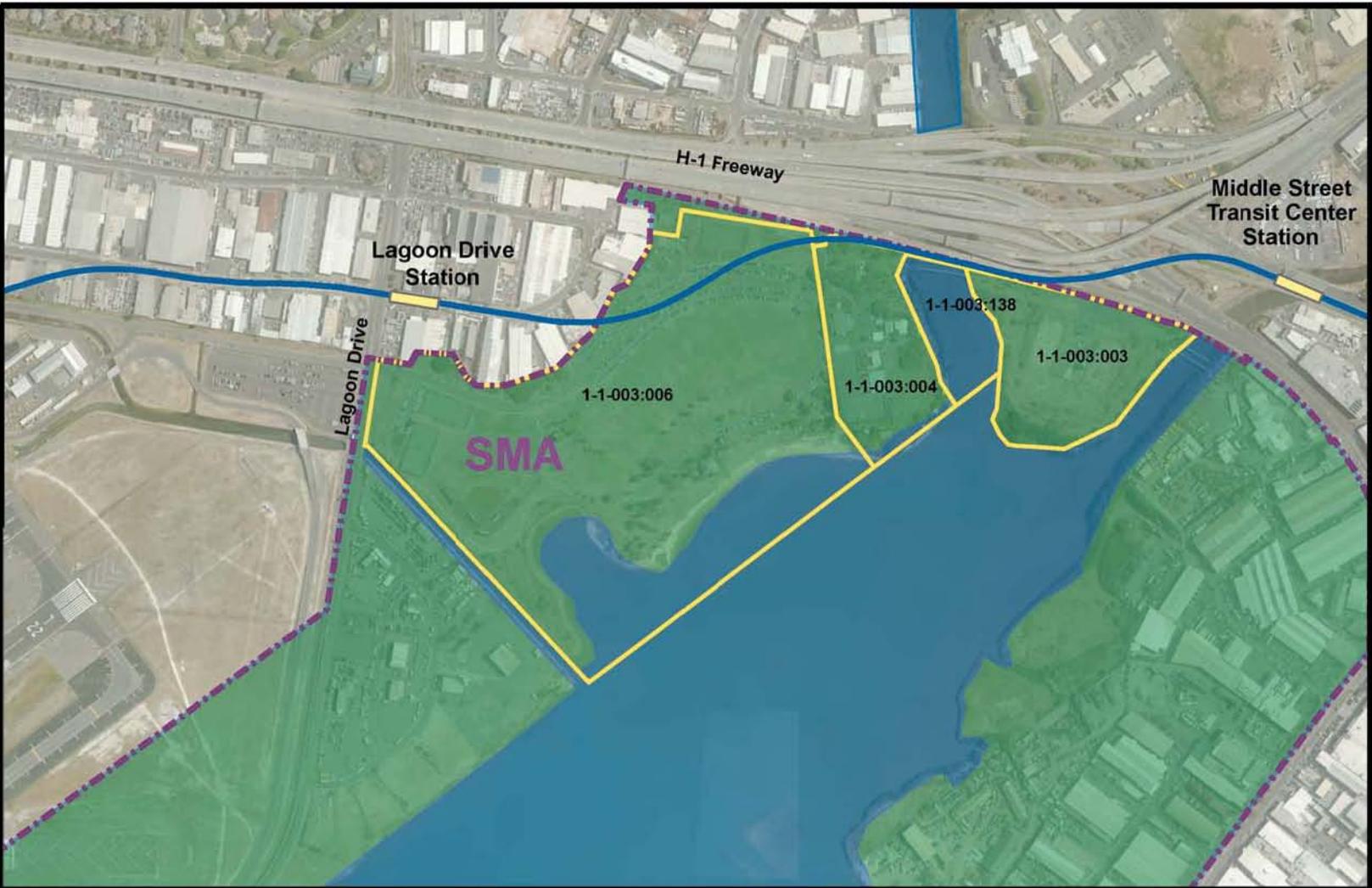
3. Roughly 350 linear feet of elevated guideway supported by 2 columns, Traction Power Substation System (TPSS) Site #28, parking, and other transit support facilities on TMKs 1-1-016:005 and 006.
4. A portion of the makai side of the Lagoon Drive on TMK 1-1-016:014.

---

<sup>1</sup> Note that while a Draft Supplemental EIS/Section 4(f) Evaluation was published for the Project on May 30, 2013, it was a limited scope document which addressed certain Section 4(f) matters as required by the U.S. District Court for the District of Hawaii. See *HonoluluTraffic.com v. FTA*, Civ. No. 11-00307 AWT, 2012 WL 5386595 (D. Haw. Nov. 1, 2012). Section 4(f) is a matter of federal law.

3. Location Map

Figure 1 illustrates the location of the Area D: Ke‘ehi Lagoon Beach Park portion of the overall Project. Detail maps of the Project in Area D: Ke‘ehi Lagoon Beach Park are provided in Attachment D.



# Area D: Keehi Lagoon Beach Park

Honolulu Rail Transit Project  
Special Management Area Use Permit



### Legend

- Special Management Area Boundary
- Transit Guideway
- Transit Station

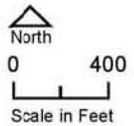


Figure 1: Overview of Area D: Ke'ehi Lagoon Beach Park Portion of the Project

#### 4. Land Use Approvals Granted and/or Approvals Required

The following land use approvals and other permits are required for Project construction and/or operation within the Area D: Ke'ehi Lagoon Beach Park area.

##### *Federal*

- Section 9 of the Rivers and Harbors Act: U.S. Coast Guard has provided advanced approval (December 23, 2008);
- Clean Water Act (CWA) Section 404 – Department of the Army permit; various nationwide permits and/or Section 10 of the Rivers and Harbors Act: City will submit application prior to construction of the Project in waters of the U.S.;
- Form 7460.1 Notice of Proposed Construction or Alteration of Impacts to the Airport and Federal Aviation Administration (FAA) Facilities: To be prepared and submitted by the City to FAA within 18 months prior to construction at the Honolulu International Airport; and
- Interstate airspace use approval for crossing H-1 Freeway access ramps at Ke'ehi Interchange: To be prepared and submitted to the Federal Highway Administration by the City prior to construction.

##### *State*

- CWA Section 401, Water Quality Certification: To be prepared;
- CWA Section 402, National Pollutant Discharge Elimination System (NPDES) Permit for stormwater associated with construction activities: Notice of General Permit Coverage for preconstruction activities received July 6, 2012;
- CWA Section 402, NPDES Permit for dewatering discharges: To be prepared and submitted by contractors as needed;
- CWA Section 402, NPDES Permit for hydrotesting discharges: To be prepared and submitted by contractors as needed;
- Community Noise Permit for third construction segment, which includes Area D, was issued for preconstruction activities on May 7, 2012;
- Community Noise Variance for the third construction segment, which includes Area D, was issued for construction activities on May 22, 2012;
- Agreement for storm drain connection to existing MS4 – construction, dewatering, and operation; ROW access to construct Project (use and occupancy): City working with Hawai'i Department of Transportation (HDOT) to develop master agreement to be completed prior to construction in the highway ROW and airport property; and
- Waiver to construct in the Runway Protection Zone (RPZ): To be prepared and submitted to HDOT – Airports by the contractor within two years of intended construction of the airport portion of the Project; HDOT – Airports will submit to FAA.

### *County*

- Grading, grubbing, stockpiling, trenching: To be prepared and submitted by contractors;
- Final Design Phase one-time review of construction plans by various City agencies;
- Final Design Flood Hazard District Compliance: To be submitted by the City as required to comply with Flood Hazard District Regulation (Article 9. Special District Regulations, Section 21-9.10) before construction of segment begins; and
- Building Permit – for work outside of ROW: To be submitted by contractor by construction segment as designs become available.

### *Shoreline Setback*

Within Area D: Ke‘ehi Lagoon Beach Park, there will be no construction within the 40-foot shoreline setback area.

### *Environmental Review*

The following documents have been published in compliance with HRS Chapter 343 and/or NEPA:

- An EIS Preparation Notice (EISPN) was published in the Environmental Notice dated December 8, 2005 (RTD 2005);
- The Alternatives Analysis was completed in October 2006 (RTD 2006);
- A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register in March 2007 (RTD 2007);
- The Draft EIS was published in the Environmental Notice dated November 23, 2008, and in the Federal Register dated November 21, 2008 (RTD 2008u);
- The notice of availability for the Final EIS was published in the Environmental Notice dated July 8, 2010 and in the Federal Register dated June 25, 2010 (RTD 2010);
- The Governor’s acceptance will conclude the HRS Chapter 343 process; and
- Following the 30-day publication notice of the Final EIS and acceptance of the Final EIS by the governor per the requirements of HRS Chapter 343, FTA will issue a Record of Decision (ROD) that will identify the selected alternative and conclude the Federal environmental review process.

### *Project Consistency with General and Development Plans*

The Area D: Ke‘ehi Lagoon Beach Park portion of the Project is within the Primary Urban Center (PUC) Development Plan area, and it, as well as the entire Project, is consistent with applicable objectives and policies of the City and County of Honolulu General Plan (as amended) (DPP 2002a) and the Primary Urban Center (PUC) Development Plan (DPP 2004). The following sections describe the Project’s consistency with a variety of plans. Attachment 3 is

Appendix J of the Final EIS and provides a detailed review of the Project's consistency with land use plans.

*City and County of Honolulu General Plan (as amended)*

As required by the City Charter, the General Plan for the City and County of Honolulu establishes long-range objectives that focus on the social, economic, environmental, and design objectives for the general welfare and prosperity of the residents of O'ahu. The General Plan also establishes broad policies designed to achieve these objectives. Please see Table 7 of Attachment 3 for details

*Primary Urban Center Development Plan*

The Primary Urban Center Development Plan presents a vision and clear set of planning policies for the area extending from Kāhala to Pearl City across the valley and coastline plains that characterize the island's southern coastline. The Plan is designed as a general framework intended to support more detailed planning at the neighborhood level. Protected views and vistas, including mauka and makai views and views of prominent landmarks in the study corridor, are identified in City development plans, including the Primary Urban Center Development Plan. The Project is consistent with land use objectives included in the plan. The City's general urban design principles protect public views based on the type of view and are applicable to both public streets and public and private structures. Some protected views and vistas will change as a result of the Project, including public views along streets and highways; mauka-makai view corridors; panoramic and significant landmark views from public places; views of natural features, heritage resources, and other landmarks; and view corridors between significant landmarks. The guideway and some stations will partially block mauka-makai public views from streets that intersect with the alignment. The Project will introduce a new elevated linear visual feature to the corridor and, as a result, changes to some views will be unavoidable. Depending on the degree of view obstruction or blockage, some view changes will be significant. Viewers' responses to these changes will vary with their exposure and sensitivity and depend on the alignment orientation, guideway and station height, and height of surrounding trees and buildings. View changes will be less notable in wider vistas or panoramic views where project elements are smaller components of the larger landscape. Generally project elements will not be dominant features in these views.

Protected views and vistas identified in the Primary Urban Center Development Plan include Waimano Home Road/Kamehameha Highway Intersection; Ka'ahumanu Street/Kamehameha Highway Intersection; Kaonohi Street/Kamehameha Highway Intersection; Honomanu/Kamehameha Highway Intersection; Bougainville Drive-mauka/makai; Maluna-mauka/makai; Wanaka Street-mauka/makai; Ala Liliko'i Street-mauka/makai; Bishop Street-mauka/makai; Panoramic views-Punchbowl Lookout toward Diamond Head; Panoramic views-

Kaka'ako Waterfront Park toward Punchbowl and the Ko'olau Mountain Range; Cooke Street-mauka/makai; Ward Avenue-mauka/makai; Panoramic views-Kewalo Basin toward the Ko'olau Mountain Range and Punchbowl; Panoramic views-Ala Moana Beach Park toward the Kooalu Mountain Range; Pi'ikoi Street-mauka/makai; Ke'eaumoku Street-mauka/makai; Āina Moana Park (Magic Island)-mauka/makai; and Panoramic views-Ala Wai Canal Promenade toward the Ko'olau Mountain Range.

#### Land Use Ordinance

The Project will be consistent with the City and County of Honolulu Land Use Ordinance (LUO). The Project will be constructed almost entirely within existing rights-of-way, and zoning does not regulate such uses. Where elements of the Project will be outside any rights-of-way, the Project is considered a "public use and structure," for the purposes of the LUO, which is a permitted principal use in all zoning districts.

Please see Tables 12 and 13 of Attachment 3 for details.

#### Other Plans

Additional land use plans and policies that promote transit-oriented development (TOD) patterns, pedestrian-friendly environments, and an inter-modal transportation network include the following:

- Hawai'i Statewide Transportation Plan (HDOT 2002)
- O'ahu Regional Transportation Plan 2030 (Oahu MPO 2007)
- Kalihi-Palama Action Plan (DPP 2004c)

#### *Summary of Relationship to Land Use Plans, Policies, and Controls*

Within the Area D: Ke'ehi Lagoon Beach Park area, the Project will link Honolulu with outlying developing areas and activity centers that have been designated for future residential and employment growth through the land use plans discussed above.

## **B. Technical Characteristics**

### 1. Use Characteristics

The 0.44 mile portion of the Project in the Area D: Ke'ehi Lagoon Beach Park area is part of the larger 20 mile fixed guideway transit system between East Kapolei to Ala Moana Shopping Center. The transit system will operate from roughly 4 a.m. to midnight on the fixed guideway in the Area D: Ke'ehi Lagoon Beach Park portion of the Project. Section 2.5 of the Final EIS (Attachment 1) provides additional detail on Project operation.

## 2. Physical Characteristics

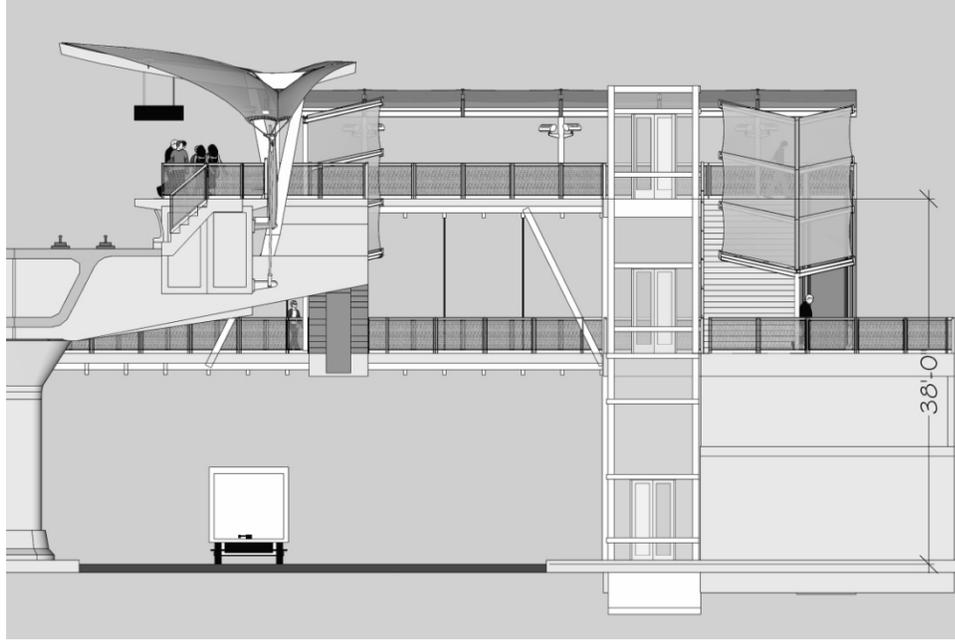
Preliminary plan and profile drawings of the Area D: Ke'ehi Lagoon Beach Park portion of the Project are provided in Attachment D. These plans generally illustrate that the Project will consist of an elevated fixed guideway with two sets of tracks. The bottom of the guideway will be roughly 18 to 60 feet above the ground surface, supported by columns that are six to eight feet wide and located approximately every 140 feet. The guideway deck is about 30 feet wide, and incorporates an integrated parapet wall at the edge of the guideway that extends three feet above the top of the rail; the parapet wall will reduce noise exposure from transit vehicles to the surrounding area.

The Project also requires a TPSS in the area abutting the SMA. A TPSS requires an approximately 3,200-square-foot area to access and maintain an approximately 40-foot-long, 16-foot-wide, and 12-foot-high painted steel box that houses transformers, rectifiers, batteries, and ventilation equipment. Figure 2 is a photograph of an example of a TPSS in another city. The TPSS will be connected to the existing power grid.



**Figure 2: Example of a Traction Power Substation (TPSS)**

The guideway that abuts, but is outside the SMA area will be the same as the guideway within the SMA area. The Lagoon Drive station will be a typical station with entrances on both the makai and mauka side of Waiwai Loop; a portion of the makai entrance will be located on TMK 1-1-016:014, which is being acquired in full and is adjacent to the SMA. Figure 3 illustrates the makai portion of a typical station in cross section. The Lagoon Drive station will have this general layout with a platform roughly 240 feet long.



**Figure 3: Station Cross Section**

3. Construction Characteristics

Construction of the Project in Area D: Ke‘ehi Lagoon Beach Park will occur primarily within the mauka portion of the park near Nimitz Highway. The Project will traverse the park near its mauka property line, generally following the alignment of the park’s access road until it leaves the park, where it will continue on an elevated guideway within the ROW of Nimitz Highway. Construction work details will be developed during preliminary and final design. The following primary construction activities will take place:

- Column installation, including drilling a shaft, pouring the foundation, and forming and pouring the column. This will be accomplished using cranes, bucket-auger drill equipment, and concrete.
- Guideway installation, including erection of a “bridge” between each column using pre-cast concrete segments. This will be accomplished using a gantry crane.
- Track and system installation. This will be accomplished using specialized equipment to lay the track plus standard electrical equipment to install the control and power systems.

4. Utility Requirements

Utility connections will be required at the Lagoon Drive station and the TPSS abutting the Area D: Ke‘ehi Lagoon Beach Park area. These connections will include water, electrical, telecommunications, and cable.

5. Liquid Waste Disposal

There are no bathrooms located within the Area D: Ke'ehi Lagoon Beach Park portion of the Project; therefore, no connection to the sewer system for liquid waste disposal will be made within this portion of the Project.

The Lagoon Drive Station abutting the Area D: Ke'ehi Lagoon Beach Park area will require connection to the municipal sewer system.

6. Solid Waste Disposal

During the operational phase, the Project will not generate solid waste within the Area D: Ke'ehi Lagoon Beach Park area. There are no stations in this portion of the Project, and train windows will not open, so items cannot be thrown from the train as it passes along the Area D: Ke'ehi Lagoon Beach Park guideway. Because waste will not be generated within this portion of the Project, disposal is not anticipated to take place within the Area D: Ke'ehi Lagoon Beach Park portion of the Project.

Prior to construction the contractor will be required to prepare and implement the following plans to mitigate construction impacts related to wastes:

- Construction Safety and Security Plan
- Construction Health and Safety Plan
- Construction Contaminant Management Plan
- Construction Contingency Plan
- Solid Waste Management Plan

7. Access to Site

During operation, the only access to the rail system within Area D: Ke'ehi Lagoon Beach Park will be from the Lagoon Drive and Middle Street Transit Center stations.

During construction, access to the site will be from Nimitz Highway, Lagoon Drive, and Waiwai Loop.

Within the Area D: Ke'ehi Lagoon Beach Park area the Project will not affect access to any site. During construction, short-term access impacts within Area D: Ke'ehi Lagoon Beach Park may occur. Access to the park will be maintained during construction in accordance with Project maintenance of traffic and safety plans.

Moanalua Stream is in this portion of the Project, but access will be maintained to the extent possible during construction and there are multiple access points to the stream and shoreline, so overall access is not anticipated to be adversely affected.

8. Other Pertinent Information

A Final EIS compliant with NEPA and HRS Chapter 343 has been prepared for the Project. The information herein is drawn from information contained in the Final EIS, including supporting technical reports referenced within it that include detailed information concerning the Project-specific field studies performed to support the Final EIS.

**C. Economic and Social Characteristics**

1. Estimated Cost and Time Phasing of Construction

*Estimated Costs*

It is estimated that the cost of construction for the entire 20 mile alignment, including construction within the Area D: Ke‘ehi Lagoon Beach Park portion of the Project will be about \$5.16 billion; construction in the SMA will exceed \$500,000.

*Construction Schedule*

Construction on the Project commenced in April 2012. However, construction was halted due to the Hawaii State Supreme Court lawsuit. Construction will resume when all necessary approvals are obtained.

2. Other Pertinent Information

A Final EIS compliant with NEPA and HRS Chapter 343 has been prepared for the Project. The information herein is drawn from information contained in the Final EIS, including supporting technical reports referenced within it that include detailed information concerning the Project-specific field studies performed to support the Final EIS.

**D. Environmental Characteristics**

1. Soils

In the Area D: Ke‘ehi Lagoon Beach Park portion of the Project the two soil types found along the Project alignment are ‘Ewa Silty Clay Loam (EmA) and Fill Land (FL). ‘Ewa Silty Clay Loam is typical of footslopes, has slopes of 0 to 2 percent, is well-drained, and transmits water at a moderately low to high rate. Fill Land is typical of flats, has slopes of 0 to 3 percent, is well-drained, and transmits water at a low to moderately low rate. The Area D: Ke‘ehi Lagoon Beach Park portion of the Project will largely be constructed within the existing driveway and parking lot of Ke‘ehi Lagoon Beach Park.

2. Topography

In the Area D: Ke'ehi Lagoon Beach Park portion of the Project the topography is generally flat with some sloped areas. No major grading activities will take place within the Area D: Ke'ehi Lagoon Beach Park portion of the Project; the existing grade of the roads and park area will remain unchanged.

3. Surface Runoff, Drainage, and Erosion Hazard

Runoff in the area of the Project within the Area D: Ke'ehi Lagoon Beach Park area generally flows overland and into Moanalua Stream or Ke'ehi Lagoon. The surrounding area is developed, and surface runoff travels to a drainage system. The City and County of Honolulu has an extensive storm drain system serving the surrounding community. The low slopes of the lands here, combined with the soil types and high level of vegetative cover in the area, contribute to a minimal erosion threat.

4. Federal FIRM Zone, Land Use Ordinance (LUO) Flood Hazard District, Other Geological Hazards

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 15003C0353G, revised January 19, 2011, shows that Area D: Ke'ehi Lagoon Beach Park portion of the Project crosses Flood Zones XS and AE within Keehi Lagoon Beach Park; AEF and VE at Moanalua Stream; and AE between Moanalua and Kalihi Streams. Figure D-FZ in Attachment D illustrates the location of the flood zones. Definition of the flood zones are provided below. The floodplain serves largely to convey stormwater toward the ocean. The Project will not adversely impact or interfere with this floodplain or its functions.

- Flood Zone AE: The flood insurance rate zones that correspond to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
- Flood Zone AEF: The area within Zone AEF reserved to pass the base flood, with the "F" standing for floodway.
- Flood Zone VE: The flood insurance rate zones that correspond to areas along the coasts subject to inundation by the 100-year floodplains with additional hazards due to storm-induced velocity wave action. In most instances, base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
- Flood Zone XS: The flood insurance rate zones that correspond to the 500-year floodplains (0.2 percent annual flood risk) that are determined in the Flood Insurance Study by detailed methods.

In regard to the LUO Flood Hazard District compliance, required documents to comply with Flood Hazard District Regulation (Article 9. Special District Regulations, Section 21-9.10) will be submitted before construction of a segment begins.

Floods, hurricanes, earthquakes, and tsunamis can all affect Hawai'i. The International Building Code (IBC) and the American Association of State Highway and Transportation Officials (AASHTO) provide minimum design criteria to address the potential for damages caused by these hazards. The Project will be designed to meet design standards related to natural hazards. Tsunamis are a concern for coastal portions of O'ahu. The State Civil Defense publishes a series of maps showing areas that should be evacuated in the event of a tsunami warning. A portion of the Project within the Area D: Ke'ehi Lagoon Beach Park is within the tsunami evacuation zone; the portion within the evacuation zone stretches from near the boundary of Ke'ehi Lagoon Beach Park and the Pacific War Memorial to where the Project leaves the SMA. Because the only Project facility within the tsunami evacuation zone in the Area D: Ke'ehi Lagoon Beach Park area is the guideway and the guideway is elevated roughly 30 feet above ground level, tsunamis are not anticipated to affect the Project in this area.

5. Other Pertinent Information

A survey of street trees was conducted in the Project corridor to identify species, size, maturity, condition, and the Project's probable effect on each tree; this information is presented in Section 4.15 of the Final EIS and in the Honolulu High-Capacity Transit Corridor Project Street Trees Technical Report. Trees were also listed as "Notable" or "Excellent", if applicable. Notable trees are those deemed to be important to the urban landscape character, while Excellent trees are mature trees, without any plantings nearby, that have been allowed to expand to their fullest possible canopy and have not been pruned or affected in such a manner to take away from their appearance.

Coordination with the DPR Division of Urban Forestry and community groups was initiated at the start of the HRS Chapter 343/NEPA process to identify Exceptional Trees along the guideway alignment. Coordination is ongoing as the Project progresses. Within Area D: Ke'ehi Lagoon Beach Park, there are no exceptional or excellent trees which would be affected by the project.

Planting of trees, and other mitigation, has been included in the design criteria and Special Provisions for the Project. Street tree pruning, removal, and planting will comply with City ordinances.

### III. AFFECTED ENVIRONMENT

This section discusses both the affected environment and the Project's impacts to the various resources discussed.

#### **A. Brief Description of Subject Site in Relation to Surrounding Area and Description of Surrounding Area**

Airport runways, a maintenance facility, and a bus parking lot are located near the Lagoon Drive Station. There is also a dense warehouse and distribution district which includes Ualena Street and Waiwai Loop.

Within Area D: Ke'ehi Lagoon Beach Park the Project will traverse the park near its mauka property line, generally following the alignment of the park's access road until the alignment diverges from the road near the tennis courts. From there the alignment remains near the mauka boundary of the park until it leaves the park, where the alignment continues within the SMA near and parallel Nimitz Highway. The Project is expected to have little impact on uses found in the surrounding area. The SMA boundary follows the mauka boundary line of the park's parcel here.

#### **B. Project Site in Relation to Publicly Owned or Used Beaches, Parks, and Recreation Areas; Rare, Threatened, or Endangered Species and Their Habitats; Wildlife and Wildlife Preserves; Wetlands, Lagoons, Tidal Lands, and Submerged Lands; Fisheries and Fishing Grounds; Other Coastal/Natural Resources**

##### 1. Publicly Owned Beaches, Parks, and Recreation Areas

###### *Ke'ehi Lagoon Beach Park*

Ke'ehi Lagoon Beach Park is located within the Area D: Ke'ehi Lagoon Beach Park portion of the Project. The City Department of Parks and Recreation (DPR) operates and maintains the 70-acre park located at Lagoon Drive near Honolulu International Airport. It contains 12 tennis courts, a baseball diamond, walking trails, picnic areas, restrooms, and access to the water. The Project guideway will cross over approximately 1 acre of the park at its mauka edge and will have no direct effect on the tennis courts nearby. Approximately 9 guideway support columns will be placed in the park at 120-foot intervals in the vicinity of the access road. The guideway will cross above the park, just makai of the four lighted tennis courts near Nimitz Highway.

In the park, the Project guideway will be approximately 30 feet wide, between 30 to 35 feet high, and will be elevated above approximately 1.3 acres of land within the park, primarily in the parking lot and the park access road. Within the park, the guideway will be constructed on approximately 9 columns that will be about 6 feet in diameter, which will result in the use of approximately 350 square feet of park land for the placement of columns. Although the placement of one guideway column would eliminate one existing parking space within the park's parking area, HART will develop a configuration within the parking area to

maintain the current number of parking spaces. No net lost to parking will result from H RTP construction through Ke'ehi Lagoon Beach Park.

Because the Project will permanently incorporate the land for the columns into the transportation facility, this will be a direct use. Officials with the DPR, which operates and maintains Ke'ehi Lagoon Beach Park, have been involved in the planning and design process within the boundaries of the park; coordination will continue during final design and construction.

Although there will be a direct use of the site, the City and County of Honolulu Department of Parks and Recreation (DPR), who operates and maintains the park, indicated in a letter dated September 25, 2008, that the Project will have a de minimis impact on Ke'ehi Lagoon Beach Park. For parks and recreational areas, de minimis is defined in 23 CFR 774.17 as an impact that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). Therefore, the Project will not adversely affect Ke'ehi Lagoon Beach Park. Subsequent to this determination, project design alignment updates further reduced the H RTP guideway footprint in the park. HART is working with DPR to update the de minimis determination to reflect the reduced impact to the park.

*Pacific War Memorial Site (Disabled American Veterans Ke'ehi Lagoon Memorial)*

Although loosely referred to as a park in various planning documents prepared by the Ke'ehi Memorial Organization and Hawai'i Disabled American Veterans (KMO-DAV), which manage the property for the Department of Land and Natural Resources, Parks Division (DLNR-Parks), the Pacific War Memorial Site property has not been designated for park or recreation uses by the governor of the State of Hawai'i, nor is it listed on the State's inventory of parks. In addition, the Project does not use portions of the property currently used or planned for memorial or recreational uses. Although the property could be viewed as a non-Section 4(f) property, the property is evaluated below as if it were a Section 4(f) property using a de minimis analysis.

The property comprises approximately 11 acres and is located between Ke'ehi Lagoon Beach Park ('Ewa boundary), Moanalua Stream (Koko Head boundary), Nimitz Highway (mauka boundary), and Ke'ehi Lagoon (makai boundary). Pursuant to Governor's Executive Order (GEO) 3967, February 19, 2003, the property was "set aside for the following public purposes: FOR PACIFIC WAR MEMORIAL PROPERTY PURPOSES[.]" GEO 3967 cancelled GEOs 1534 and 1550 and transferred jurisdiction from the abolished Pacific War Memorial Commission of Hawai'i to DLNR-Parks. DLNR-Parks oversees the KMO-DAV, which has been maintaining the property.

KMO-DAV manages the property for multiple uses, including memorial and recreational uses. Facilities on the property include a rental office, memorial obelisk, several community centers and meeting rooms, Disabled American Veterans Headquarters, a storage building, a rehabilitation facility, and two chapels. The property also has a basketball/volleyball court, a grass field with a baseball backstop, small pavilions, and a picnic area. It is fenced-in along its

perimeter and has a lockable gate at its entrance for security at night. The property is closed between the hours of 10:00 p.m. and 6:00 a.m., except by permit.

In 2005, KMO-DAV prepared the Ke'ehi Lagoon Memorial Master Plan Update. The Plan included four goals: (1) Maintain the park for use by veterans and their families, youth groups, and the community and complement Ke'ehi Lagoon Beach Park; (2) maintain the integrity of the obelisk; (3) provide a rehabilitation center for disabled veterans; and (4) maintain the park property "as self-sustaining so that the public may not be asked constantly for support." All of the memorial and recreational features, attributes, and activities of the property are located makai of the Project. The Project will traverse the property near the mauka property line next to Nimitz Highway and grade-separated ramps for the H-1 Freeway. On the property, the Project guideway will be approximately 30 feet wide, between 30 and 35 feet high, and will be elevated above approximately 0.5 acre of land. The guideway will be constructed on approximately three columns that will be about 6 feet in diameter each, which will result in the use of approximately 150 square feet of the property. The area where the three guideway columns will be constructed is generally where the elevated guideway will pass over the property. This area is not used for memorial or recreational activities and is in an area where there are existing utility easements. The Project will not adversely affect the activities, features, or attributes of the memorial or recreational areas on this property.

Measures to minimize harm were considered in the Project's design in coordination with DLNR-Parks and KMO-DAV. To minimize Project use of the property, the Project's guideway was located as close to the mauka boundary as possible, consistent with operational and engineering constraints, and to be away from the memorial and recreational activities and facilities, such as the memorial obelisk, rehabilitation center, chapels, basketball/volleyball court, small pavilions, and picnic area. The guideway support columns have been designed to use as little of the property as practicable, be located in areas away from memorial and recreational activities, and accommodate access to the property by users. Based on the existing use of the property, the area where the three guideway columns will be constructed and where the elevated guideway will pass over the property is not used for memorials or recreational activities and is in an area where there are utility easements.

During final design and construction, HART will coordinate with KMO-DAV to replant and relocate any affected trees and to landscape the area near the columns. In addition, the fence will be replaced with "security fencing" on the mauka property line and the utility bridges, as feasible. The area where the columns will be constructed is not in an area that would change KMO-DAV's future plans for the property.

Access to the property will be maintained during construction in accordance with the Project's maintenance of traffic and safety plans. During construction, the work area generally will be limited to the area under the guideway. After construction, the property will be restored in consultation with KMO-DAV. HART will coordinate with KMO-DAV to develop a landscaping and planting plan to replace vegetation and trees disturbed during construction. KMO-DAV agrees

with the mitigation measures. Coordination with KMO-DAV will continue during final design and construction.

KMO-DAV officials who operate and maintain the property have been involved in the planning and design process for the portion of the Project within the boundaries of the property. Meetings have been held to ensure that the Project will result in a net benefit regarding access to this multi-use memorial and recreational property. With the measures to minimize harm and mitigation described above, DLNR/KMO-DAV has stated its concurrence that the Project's use of the property would have a *de minimis* impact on the property since it would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

2. Rare, Threatened, or Endangered Species and Their Habitats/Wildlife and Wildlife Preserves

No rare, threatened, or endangered species were observed in the Area D: Ke'ehi Lagoon Beach Park area and coordination with governmental agencies and the literature review indicate that there are no designated critical habitats or wildlife preserves within the Area D: Ke'ehi Lagoon Beach Park portion of the Project.

*Fauna*

One protected "migratory" waterbird species was observed at Moanalua Stream and the drainage channel along Aolele Street during the project survey. The Migratory Bird Treaty Act (MBTA) protects this species, the Black-crowned night heron (*Nycticorax nycticorax hoactii*), although it is not listed as threatened or endangered. Local colonies are known to roost and nest in mangrove trees within Pearl Harbor and Ke'ehi Lagoon; however, nests have not been observed in the mangroves along the east bank of Moanalua Stream.

Construction activities over Moanalua Stream may temporarily affect the availability of foraging sites for Black-crowned night herons. But over time, the waterbird will adjust to new structures built for the Project; they continue to occupy other wetland areas despite the construction of nearby buildings and overhead utilities and the construction or widening of adjacent roads and highways. The Project will not adversely impact this waterbird species in the Area D: Ke'ehi Lagoon Beach Park area.

*Flora*

There are no rare, threatened, or endangered floral species in the Area D: Ke'ehi Lagoon Beach Park area. The only endangered plant known in the study corridor is ko'oloa'ula (*Abutilon menziesii*), which does not occur within the Area D: Ke'ehi Lagoon Beach Park area.

3. Wetlands, Lagoons, Tidal Lands, and Submerged Lands

In the Area D: Ke'ehi Lagoon Beach Park area, there are three "wetland" areas present within Aolele Ditch. Aolele Ditch is a man-made drainage feature

constructed to drain stormwater to Ke'ehi Lagoon from the northeastern portion of Honolulu International Airport and the adjacent light industrial area. The lower end of the ditch is tidal; however, the part of the ditch crossed by the guideway is an intermittently flowing (non-relatively permanent water), unlined, open ditch fed by several small drains from the light industrial area mauka. These drains provide sufficient freshwater to establish three small semi-permanent wet areas along the bottom of the ditch, one of which occurs under the planned guideway.

These "wetland" features support a variety of wetland plants and aquatic insects, such as dragonflies. The most downstream of the three wetlands connects to the tidal reach of Aolele Ditch and harbors top minnows and American crayfish, suggesting a permanent fresh or slightly brackish wetland that has developed on a thin layer of sediment over the concrete channel bed in this segment. Although some shading impacts to these wetland areas are anticipated, these are minimal and there will be no adverse impacts on wetlands due to the Project in the Area D: Ke'ehi Lagoon Beach Park area.

#### 4. Fisheries and Fishing Grounds

The Project in Area D: Ke'ehi Lagoon Beach Park will not impact the use or availability of coastal or stream-based fishing grounds used because of the characteristics of the elevated guideway, the overall distance between the Project and the shoreline in this area, and the linear nature of the streams that allow for access at multiple locations.

The Project will encroach on 0.004 acres of EFH, due to guideway support columns to be constructed in Moanalua Stream. In a letter dated May 13, 2013, the U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) indicated that the management unit species (MUS) and life stages likely found in the affected EFH include: eggs, larvae, juveniles and adults of Coral Reef Ecosystem MUS; eggs, larvae, juveniles and adults of Bottomfish MUS; eggs, larvae, juveniles and adults of Crustacean MUS; and juveniles and adults of Pelagic MUS. While acknowledging the potential for adverse effect on the EFH at Moanalua Stream, NOAA Fisheries has indicated that this adverse effect can be avoided and/or minimized through implementation of appropriate Best Management Practices (BMPs), as pursuant to Clean Water Act requirements for in-water activities. The FTA and HART will continue to work with NOAA Fisheries to address their concerns to ensure protection of NOAA trust resources. Further, the Project must obtain permits from the U.S. Army Corps of Engineers (USACE) for work within Moanalua Stream.

#### 5. Other Coastal/Natural Resources

The Project will not adversely affect the opportunities for public enjoyment and use of any other coastal or natural resources within the Area D: Ke'ehi Lagoon Beach Park area.

## C. Relation to Historic, Cultural, and Archaeological Resources

### 1. Archaeological

The archaeological study area was determined and three general categories of archaeological resources that could be affected were identified: burials, pre-contact archaeology, and post-contact archaeology. There is a low chance of encountering burials and post-contact archaeological resources, but a moderate chance of encountering pre-contact archaeological resources in the Area D: Ke'ehi Lagoon Beach Park area. Subsurface features and deposits, including iwi kupuna or Hawaiian burials, that have not been previously identified may be affected by the Project.

An archaeological inventory survey (AIS) that includes an approximately 4.3 mile segment from Kalaloa Street in Halawa to the Keehi Interchange has been completed. The AIS identified two archaeological cultural resources which are recommended National/Hawai'i Register-eligible under Criterion D, including sections of a buried asphalt roadway (SIHP 50-80-13-7420) as well as concrete slabs and coral paving (SIHP 50-80-13-7421). These resources are not located within the Area D: Ke'ehi Lagoon Beach Park area. Based on the results of the AIS, archaeological monitoring is recommended near the locations of these resources, near Halawa Stream, and in an area of natural sediments extending 300m east from the Lagoon Drive Station. This includes the area where the Project enters Area D: Ke'ehi Lagoon Beach Park. The AIS reports are available at <http://www.honolulustransit.org>.

If, in the unlikely event that subsurface cultural deposits or human skeletal remains are encountered during the course of project-related construction activities, all work in the immediate area should stop and the SHPO will be notified in accordance with Federal and State law. If archaeological resources are identified during construction, the City will minimize impacts.

### 2. Cultural

Archival and ethnographic research shows that most of the traditional cultural resources within the Area D: Ke'ehi Lagoon Beach Park portion of the Project have been heavily damaged or destroyed through previous development. Short-term effects are related to site work or construction-related activity and usually only temporarily affect access or operation of identified resources. Potential long-term effects on cultural resources include permanent modification, such as displacement, damage, or destruction.

HART completed Traditional Cultural Property (TCP) studies for the first three construction phases of the project (East Kapolei to Middle Street). In July 2012, the FTA determined that there are no adverse effects on eligible TCPs for the Project between East Kapolei and Middle Street. No adverse effects as a result of the Project have been identified for any previously identified cultural resources in Area D: Ke'ehi Lagoon Beach Park. No new National Register-eligible Traditional Cultural Properties have been identified in Area D: Ke'ehi Lagoon Beach Park.

One traditional cultural property (TCP) resource or wahi pana ('Au'au, Site #42) was identified at the edge of Area D: Ke'ehi Lagoon Beach Park. 'Au'au was a cave of refuge during times of war, near the shore of Moanalua. Although this meets the National Register of Historic Places (NHRP) criteria B, it was determined to be ineligible for nomination because it does not retain sufficient integrity to link the tradition and the place.

Any cultural resources that are uncovered will be assessed through collaborative consultation with appropriate cultural practitioners and/or community groups in accordance with the Programmatic Agreement (PA) developed pursuant to Section 106 of the National Historic Preservation Act (NHPA).

### 3. Historical

Through agency coordination, the Project's Area of Potential Effects (APE) was defined generally as one parcel deep from the fixed guideway alignment in the Area D: Ke'ehi Lagoon Beach Park portion of the Project. The APE also includes parcels immediately adjacent to all facilities associated with the fixed guideway system, including TPSS.

#### *Historical Resources Within Area D: Ke'ehi Lagoon Beach Park*

There are no historical resources within the Project APE in the Area D: Ke'ehi Lagoon Beach Park area.

#### *Historical Resources in the Vicinity of Area D: Ke'ehi Lagoon Beach Park*

The Hawai'i Employers Council (TMK 1-1-016:004) is located mauka of and directly adjacent to Ke'ehi Lagoon Beach Park. Figure D-HR in Attachment D illustrates the location of this historic resource. The Hawai'i Employers Council was built in 1961. The council was founded in 1943 in response to the National Labor Relations Act of 1935, which guaranteed the rights of workers to organize. By February 1962, when the council moved to its new offices, it had more than 300 members. This resource is eligible for nomination to the NRHP under Criterion A for its association with the history of labor relations in Hawai'i and under Criterion C for its association with the architectural firm of Wimberly and Cook. In addition, its successor firm, Wimberly, Allison, Tong & Goo, had a major influence on Hawaiian architecture in this period. The Project entails construction of an elevated guideway along the mauka edge of Ke'ehi Lagoon Beach Park and within the neighboring TMK 1-1-016:005 that will skirt the corner of the parcel the building is on, and be approximately 40 feet from the corner of the building and about 40 feet high. The primary views of the building are from the front of the building (on Waiwai Loop) at ground level. The guideway will be behind and beside the building, and therefore, will not eliminate primary views of the historic building. There will be no direct use of the historic building or its parcel and the Project will not substantially impair the visual and aesthetic qualities of the building that contribute to the resource's NHRP eligibility. Nevertheless, it was determined that the Project will cause effects to the integrity of the setting, feeling, and association of this resource; therefore, there will be an adverse effect on this resource.

A Programmatic Agreement (PA) was prepared in consultation with the State Historic Preservation Officer and the Section 106 consulting parties to outline measures to minimize and mitigate the Project's effects on these resources. See Attachment 6 for a copy of the executed PA.

**D. Coastal Views from Surrounding Public Viewpoints and from the Nearest Coastal Highway Across the Site to the Ocean or Coastal Landform**

The Project in the Area D: Ke'ehi Lagoon Beach Park area will require the installation of the guideway and columns along the mauka perimeter of the park. Project elements will fit with the bulk and scale of other structures near the airport, which is surrounded by other transportation elements and industrial buildings. The open special quality of the park will be altered by the guideway and columns; this change will be noticeable but not substantial to park users because the alignment will be along the periphery of the park and closely follow Nimitz Highway and the H-1 Freeway. Views of Honolulu Harbor and the park are already obstructed by the interchange and will not be substantially affected by the Project. The guideway and stations will not be dominant elements in views of regional scenic features.

The nearest coastal highway is Nimitz Highway. The view from this highway toward the coast is currently obscured by buildings along the highway and surrounding industrial area, highway elements, and trees; therefore the Project will not substantially interfere with or detract from the line of sight toward the sea.

**E. Quality of Receiving Waters and Ground Water (Including Potable Water) Resources. Describe Effects on the Groundwater Recharge Cycle within the Groundwater Control Area, Show Existing and Proposed Well Locations with Pumping Estimates. Describe Effects on Receiving Waters – Streams and Ocean Waters**

Streams

The Project will directly impact Moanalua Stream in the Area D: Ke'ehi Lagoon Beach Park area; Moanalua Stream is on the Hawai'i State Department of Health's (HDOH) 303(d) List of Impaired Waters (HDOH 2008). Moanalua Stream, a channelized stream with associated tidal mangrove wetlands, is connected to Ke'ehi Lagoon, an embayment of the Pacific Ocean. The stream is subject to tidal flow and the estuary is within the OHWM. Various fish species were noted to inhabit the stream.

Because of the 300-foot width of the channel where the Project crosses Moanalua Stream, two guideway columns (approximately 36 square feet each on 10-foot drilled shaft foundations) will need to be constructed in the estuary; this location is makai of the H-1 Freeway ramp to Nimitz Highway but mauka of a utility/pedestrian bridge crossing the channel. In this area, there exist multiple bridge crossings, including Kamehameha Highway, the H-1 Freeway, Nimitz Highway ramps, and two utility/pedestrian bridges makai of the guideway crossing. The guideway columns will be aligned with the upstream viaduct piers, as feasible, to minimize obstruction of stream flow. As mitigated, placement of the piers is not expected to have any consequences on the

Moanalua Stream estuarine environment or its fauna beyond a loss of 175 square feet, or 0.004 acre, of sandy mud bottom.

Stormwater discharged from the guideway will be managed using permanent stormwater BMPs. Permanent BMPs will include discharging stormwater from the guideway to the landscaped ground for infiltration and potentially the use of downspout filters.

### Marine Waters

In the Area D: Ke'ehi Lagoon Beach Park area there is Ke'ehi Lagoon, a Class A Marine Embayment. Ke'ehi Lagoon has associated inlets of point-source discharges and streams, and is on HDOH's 303(d) List of Impaired Waters (HDOH 2008). The Project will not discharge stormwater directly into the lagoon and is not anticipated to adversely affect Ke'ehi Lagoon.

### Flood Zones

The Project will cross one floodplain associated with Moanalua Stream in the Area D: Ke'ehi Lagoon Beach Park area. Figure D-FZ in Attachment D illustrates the location of these flood zones. The flood zones traversed by the guideway are AEF and AE; this floodplain serves largely to convey stormwater toward the ocean. The Project will not cause significant floodplain encroachment as defined by USDOT Order 5650.2. The Project will not have a substantial effect on the groundwater recharge cycle, nor will it have any detrimental effects on the quality of surrounding waters. The guideway in Area D: Ke'ehi Lagoon Beach Park will be elevated above the floodplain by piers and there will be no impact to water levels in this floodplain. Any impacts to floodplains caused by the Project will be mitigated through design to comply with current flood zone regulations. There will be no notable adverse impacts on natural and beneficial floodplain values. There will be no impact to water levels in flood zones.

### Groundwater

In the Area D: Ke'ehi Lagoon Beach Park area, the Project overlies the Honolulu Aquifer Sector of the Southern O'ahu Basal Aquifer (SOBA). The Project meets the coordination requirements of Section 1424(e) of the Safe Drinking Water Act, in accordance with the 1984 Sole Source Aquifer Memorandum of Understanding between the EPA and the USDOT. A Water Quality Impact Assessment was reviewed by EPA, and EPA concurred that contamination of the SOBA will not occur (letter dated March 27, 2009, located in Attachment 2). The construction methods and BMPs employed and the presence of an upward hydraulic gradient in the area will protect the groundwater and there will be no adverse effect to groundwater quality.

Caprock overlies the SOBA and impedes the escape of groundwater from this basaltic aquifer. Water in the caprock is brackish and not potable, though the water in the upper portion of the caprock has a low enough salinity to be used for irrigation. Beneath the caprock and underlying all of southern O'ahu, the SOBA is heavily used because it contains large supplies of fresh water. The boundary between non-drinking water aquifers and underground sources of drinking water is referred to as the Underground Injection Control (UIC) line by the State Department of Health (HDOH); in the Area D: Ke'ehi Lagoon Beach Park area, the Project will generally follow the edge of the UIC line. The Project alignment will be downgradient of active drinking water wells on the

island and the overall groundwater flow direction is seaward. HDOH's Safe Drinking Water Branch (SDWB) publishes groundwater contamination maps, and included in that report are the locations of water wells. Most of these water wells are located mauka of the alignment, and all wells makai of the alignment are either inactive or used for irrigation. Potential contamination from the guideway will not migrate to drinking water wells. These wells are drawing from a depth of several hundreds of feet below ground surface, and the shafts will not penetrate anywhere near those depths.

Subsurface conditions in the Area D: Ke'ehi Lagoon Beach Park area generally consists of artificial fills approximately 10 feet thick, placed over thick stratum of recent alluvium over lagoonal and estuarine deposits extending to depths of 80 to over 150 feet below ground surface (bgs). Sands, coral detritus, and silty clays underlie the soft soils and extend to the approximately 200-foot maximum depth explored. The existing ground surface elevation ranges from +5 to +15 feet above mean sea level (MSL). Local areas may have been built up by the addition of fill to maintain grades above tidal influences from nearby waters. Brackish groundwater due to the nearby ocean in this area is expected within 10 feet of the ground surface.

Two general foundation construction methods will be used to support the aerial guideway structure: single drilled shafts that will be integral with columns, and driven piles that will require pile caps for connection to columns. Drilled shafts will be used for most of the alignment because they can be installed faster, require a smaller area of soil disturbance, and are quieter to install than driven piles. At this time, all shafts within the Area D: Ke'ehi Lagoon Beach Park area are planned to be installed using the drilled shaft method. The drilled shafts will be 6 feet in diameter, and the depth of the shaft will depend on local soil conditions. Foundation depths are expected to range from about 55 to 250 feet. In the Area D: Ke'ehi Lagoon Beach Park area foundations will not penetrate into the basalt.

Groundwater in the shafts or excavations for pile caps could be contaminated with petroleum products or other chemicals. These contaminants will be removed from water pumped from the excavations in accordance with standards established by the HDOH. Petroleum products might require the use of oil/water separators, strippers, or other remediation techniques. The water removed from the excavations or shafts must either be returned to the groundwater system or added to the stormwater drainage system. Any water discharged into the drainage system and surface water bodies will require an NPDES Dewatering Permit. This discharge must meet water quality standards. A monitoring program will ensure compliance with water quality standards. An NPDES Construction Stormwater Permit has been obtained by the Project, and will ensure proper handling of hazardous materials and other pollutants.

Construction of each pier is expected to take less than one week, and the shafts will only be open long enough to install a rebar cage in the completed shaft and fill it with concrete. Once the shaft is filled with concrete, it is unlikely that an open pathway that could allow surficial contaminants to travel down the side of the shaft will remain, because the flowable concrete used for shaft construction will seal against the ground. Casing will be required at drilled shaft excavations that extend through soft or loose surficial deposits. Where these unstable deposits extend to considerable depth, the casing may be incorporated into the shaft's structural design. Additionally, where drilled shaft completion depths extend below static water levels, the fluid levels within the excavation must be maintained until concreting is complete for excavation stability. The

counterbalancing fluid may simply be water and naturally derived cuttings, or specially formulated drilling mud. In areas of loose sands or soft clays, casings or drilling fluids such as environmentally inert polymer slurry may be necessary to maintain the integrity of the drilled hole during construction. In either case, this fluid will be managed in accordance with BMPs to protect the environment from uncontrolled releases. Construction-derived wastes will be managed in accordance with prevailing regulations. Uncontrolled releases will not be allowed. Slurry will be recycled through a de-sander and reused. Water will be collected and treated as needed prior to disposal or reuse. No contaminated soils will be disposed of in the Sole Source Aquifer area. No long-term impacts to the SOBA are anticipated.

The Project will slightly increase impermeable surfaces in the Area D: Ke'ehi Lagoon Beach Park area. By installing permanent BMPs, most of the runoff will be directed back into the ground to recharge the groundwater system, resulting in little change in the amount of infiltration. In this way, although runoff from surrounding surfaces may enter the groundwater system along a different path than previously, the groundwater recharge needed to sustain the aquifer system will continue. Therefore, the Project will not result in any long-term changes to groundwater levels. Runoff from the guideway itself is expected to be relatively free of pollutants and will not threaten groundwater quality.

**F. Include Suitable and Adequate Location and Site Maps**

Please see Attachment D.

**G. Other Pertinent Information**

A Final EIS compliant with NEPA and HRS Chapter 343 has been prepared for the Project. The information herein is drawn from the Final EIS, including supporting technical reports referenced within it that include detailed information concerning the detailed Project-specific field studies performed to support the Final EIS.

## IV. PROJECT IMPACTS

This section discusses impacts within the Area D: Ke'ehi Lagoon Beach Park area specifically. The Introduction portion of the SMA application provides a Project-wide discussion of impacts related to CZM objectives and SMA guidelines.

### A. Coastal Zone Management Objectives

The text in italics below is copied directly from HRS Section 205A-2, Coastal Zone Management Program; Objectives and Policies.

#### 1. Recreational Resources

A. *Provide coastal recreational opportunities accessible to the public.*

Section 4.5 of the Final EIS (Attachment 1) describes the Project's effect on parks and recreation areas. Please see Section III.B.1 for details regarding publicly owned beaches, parks, and recreation areas, and Section III.B.5 for details regarding other coastal/natural resources in the Area D: Ke'ehi Lagoon Park area.

While the portion of the Project in Area D: Ke'ehi Lagoon Beach Park does not provide any new coastal recreational opportunities for the public, it will not adversely affect the existing coastal recreational resources or their uses by the public. Ke'ehi Lagoon Beach Park and the Pacific War Memorial Site will remain accessible to the public and offer the same uses they currently do. Overall the Project will improve the availability of access to existing and future parks and recreational facilities along the alignment.

#### 2. Historic Resources

A. *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Section 4.16 of the Final EIS (Attachment 1) discusses the Project's effect on archaeological, cultural, and historic resources. Please see Section III.C for details regarding historic resources in the Area D: Ke'ehi Lagoon Beach Park area.

There is a low chance of encountering burials and post-contact archaeological resources, but a moderate chance of encountering pre-contact archaeological resources in the Area D: Ke'ehi Lagoon Beach Park area. There are no historic resources within the Area D: Ke'ehi Lagoon Beach Park area.

Outside of the Area D: Ke'ehi Lagoon Beach Park area, but in the general vicinity, the Project will have an adverse impact on the Hawai'i Employers Council building.

Because the Project will result in adverse effects on some resources and avoidance is not possible, a PA was prepared in consultation with the State Historic Preservation Officer (SHPO) and the Section 106 consulting parties to outline measures to minimize and mitigate the Project's effects on these resources. See Attachment 6 for a copy of the executed PA.

3. Scenic and Open Space Resources

- A. *Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Section 4.8 of the Final EIS (Attachment 1) identifies the Project's impacts and mitigation measures related to protected views. Scenic impacts associated with the Project in the Area D: Ke'ehi Lagoon Beach Park area include a potential change in the setting of a historic resource (The Hawai'i Employers Council) and alteration of 'Ewa-Koko Head and mauka-makai views. The guideway will largely be constructed along the park's mauka perimeter. Views of Honolulu Harbor and the park are already obstructed by the Nimitz Highway and H-1 Freeway interchange.

4. Coastal Ecosystems

- A. *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Section 4.14 of the Final EIS (Attachment 1) discusses the Project's effect on water quality, which could impact coastal ecosystems. Please see Section III.B.4 and III.B.5 for details regarding coastal/natural resources in the Area D: Ke'ehi Lagoon Beach Park area.

The project will encroach on 0.004 acres of Essential Fish Habitat (EFH), due to guideway support columns to be constructed in Moanalua Stream. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the management unit species (MUS) and life stages likely found in the affected EFH include: eggs, larvae, juveniles and adults of Coral Reef Ecosystem MUS; eggs, larvae, juveniles and adults of Bottomfish MUS; eggs, larvae, juveniles and adults of Crustacean MUS; and juveniles and adults of Pelagic MUS. While acknowledging the potential for adverse effect on the EFH at Moanalua Stream and adverse indirect effects on the coastal ecosystem through generalized construction impacts, NOAA Fisheries has indicated that these adverse effects can be avoided and/or minimized through implementation of appropriate temporary and permanent BMPs, as pursuant to Clean Water Act requirements for in-water activities.

There will be no direct drainage into Ke'ehi Lagoon in the Area D: Ke'ehi Lagoon Beach Park portion of the Project, due to the distance between the alignment and the coast. The Project is being designed so as to ensure minimal environmental impacts throughout the alignment through the use of construction and permanent BMPs. Stormwater runoff will be filtered through landscaped areas and sedimentation collars where possible. Stormwater will be filtered through downspout filters or specially designed bioinfiltration units near water bodies on the HDOH 303(d) list of water quality limited segments, such as Moanalua Stream. The BMPs will promote a natural, low-maintenance, sustainable approach to managing and increasing stormwater quality. At a minimum, all stormwater downspouts from the guideway will include erosion control BMPs and energy dissipation devices to prevent any scour of landscaped medians.

5. Economic Uses

- A. *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Section 4.3 of the Final EIS (Attachment 1) discusses the Project's effect on economic activity. To accomplish the economic development objectives for O'ahu's urban corridor, suitable infrastructure must be developed. The Project will result in improved infrastructure and long-term benefits to residents, businesses, and commuters. The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will not adversely affect coastal-dependent economic activities.

6. Coastal Hazards

- A. *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

A portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area is located in a tsunami evacuation zone. The only Project facility within the tsunami evacuation zone in the Area D: Ke'ehi Lagoon Beach Park area is the guideway and the guideway is elevated roughly 30 feet above ground level; therefore, tsunamis are not anticipated to affect the Project in this area. The Project is being designed to applicable standards and specifications regarding storm weather and associated risks. Erosion is not anticipated to be an issue in this area, due to the slight slopes, as well as the soil types and level of vegetative cover. Sea level rise may have an impact on the Project, due to its fairly low elevation, but that impact is not expected to occur until sometime in the future. According to Project engineers' estimates, based on a general analysis of the topography and contours in the area, sea level would have to rise more than 3 feet to have an impact on the portion of the Project in the Area D: Ke'ehi Lagoon Beach Park area. Subsidence is not expected to be an issue in the area, according to initial geological findings; Project foundations, the columns on which the guideway sits, will be installed to a

depth sufficient to prevent subsidence. The Project is not anticipated to increase pollution.

7. Managing Development

- A. *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

The Project will require State and City permits and approvals that include provisions for public participation and ensure protection of coastal resources, as described in Section 4.21 of the Final EIS (Attachment 1). The Project will also provide necessary infrastructure to accommodate existing and planned future travel demand. The Project is consistent with the transportation and land use elements of adopted State and Local government plans.

8. Public Participation

- A. *Stimulate public awareness, education, and participation in coastal management.*

Chapter 8 of the Final EIS (Attachment 1) discusses the Project's public outreach activities. Agencies, non-governmental groups, and the public have been engaged throughout the Project's planning process, as required by Federal and State law. Various public outreach activities were held near the Area D: Ke'ehi Lagoon Beach Park area, as discussed above in Section I.F.6.

9. Beach Protection

- A. *Protect beaches for public use and recreation.*

Ke'ehi Lagoon Beach Park is located within Area D. The Project will have no impact to the makai beach area of the park. Once constructed, the Project will increase mobility and improve options for users to access the Ke'ehi Lagoon Beach Park via the Lagoon Drive station. The Project will not affect coastal erosion in this area.

10. Marine Resources

- A. *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area is not adjacent to or abutting a shoreline and will not affect marine resources.

**B. SMA Guidelines**

The text in italics below is copied directly from ROH Chapter 25-3.2, Review Guidelines.

*The following guidelines shall be used by the council or its designated agency for the review of developments proposed in the SMA.*

a) *All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:*

- 1) *Adequate public access, by dedication or other means, to and along the publicly owned or used beaches, recreation areas and natural reserves is provided to the extent consistent with sound conservation principles;*

Please see Section III.B.1 for details regarding publicly owned beaches, parks, and recreation areas in the Area D: Ke‘ehi Lagoon Beach Park area.

The portion of the Project within the Area D: Ke‘ehi Lagoon Beach Park area will not adversely affect access to and along publicly owned beaches, recreation areas, and natural reserves. Temporary modifications to access public recreation areas will be required for public safety during construction; however, public access will be maintained. Ke‘ehi Lagoon Beach Park, the Pacific War Memorial Site, and Moanalua Stream will experience direct impacts due to the Project, but these effects will not be adverse and all three resources will remain open and accessible during Project construction and operation. Once constructed, the Project will increase mobility and improve options to access public recreation areas, such as public beaches and parks.

- 2) *Adequate and properly located public recreation areas and wildlife preserves are reserved;*

The portion of the Project within the Area D: Ke‘ehi Lagoon Beach Park area will not adversely affect or in any way diminish the quality of public recreation areas or wildlife preserves; there are no wildlife preserves in the Area D: Ke‘ehi Lagoon Beach Park area. Ke‘ehi Lagoon Beach Park and the Pacific War Memorial Site will retain their functions, and although they will be directly impacted, neither park will not be adversely affected. Roughly 1.5 acres of land, in total, will be acquired for the Project, but this impact will be mitigated through coordination with DPR and DLNR/KMO-DAV as described in Section III.B.1.

- 3) *Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources; and*

For the portion of the Project within the Area D: Ke‘ehi Lagoon Beach Park area HART will ensure that proper containment, treatment, and disposal methods for solid and liquid wastes are followed during construction and operation of the Project in accordance with Federal, State, and Local regulations as discussed in the Final EIS (Attachment 1) Section 4.12 Hazardous Waste and Materials. There will be no adverse impacts to SMA resources.

- 4) *Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, wind damage, wave damage, storm surge, landslides, erosion, sea level rise, siltation or failure in the event of earthquake.*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will not have an adverse effect on water resources. During construction, as described in the Final EIS (Attachment 1) Section 4.18.10 Construction Phase Effects Water Resources, temporary Best Management Practices (BMPs) for the management of stormwater will be designed, installed, and maintained to reduce the potential for impacts to water resources from erosion and other construction activities. Permanent BMPs also will be designed and installed as discussed in Section III.E; stormwater from the guideway will be discharged to landscaped areas for infiltration and discharged to specifically designed bioinfiltration units near Moanalua Stream, a HODH 303(d) listed water body. The Project will avoid or minimize impacts on recreational and scenic amenities where reasonable. The Project will not impact floodways, cause wind damage, wave damage, storm surges, landslides, erosion of coastal resources, sea level rise, or siltation. The Project is designed to meet seismic standards and other natural hazards as applicable.

- b) *No development shall be approved unless the council has first found that:*

- 1) *The development will not have any significant adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include but not be limited to the potential cumulative impact of individual developments, each one of which taken in itself might not have a significant adverse effect and the elimination of planning options;*

In the Area D: Ke'ehi Lagoon Beach Park area, there will be no significant adverse environmental or ecological impacts due to the Project as discussed in the Final EIS (Attachment 1) Section 4.13.3 Ecosystems Environmental Consequences and Mitigation. The Project design includes measures to avoid and minimize impacts to the environment, and there will be no significant cumulative impact from the Project within the SMA. The Project's impacts are outweighed by the Project's benefit of providing additional mobility in the study corridor, as well as improving corridor travel reliability, access, and transportation equity.

- 2) *The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26;*

As discussed above, the portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area is consistent with the objectives and policies set forth for Special Management Areas.

- 3) *The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required;*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area is consistent with all plans and zoning, as discussed above in Section II.A.4.

- 4) *That the development has been adequately planned to minimize the risk from coastal hazards such as tsunamis, hurricanes, wind, storm waves, flooding, erosion, and sea level rise; and*

A portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area is located in the tsunami evacuation zone. The only Project facility within the tsunami evacuation zone in the Area D: Ke'ehi Lagoon Beach Park area is the guideway, which is elevated roughly 30 feet above ground level. The Project has been adequately planned and designed to the extent practical to minimize the risk from coastal hazards, including tsunamis. The Project design meets applicable standards and specifications regarding storm weather and construction in floodplains. Temporary and permanent BMPs will minimize the risk to coastal areas from erosion. According to Project engineers' estimates, based on a general analysis of the topography and contours in the area, sea level would have to rise more than 3 feet to have an impact on the portion of the Project in the Area D: Ke'ehi Lagoon Beach Park area.

- 5) *That the development does not impede public access to the shoreline or beach area.*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will not impede public access to the shoreline or beach area. Short-term changes to Ke'ehi Lagoon Beach Park may arise during construction, but the Project will not impede public access to the shoreline or beach area. Conversely, the Project will increase mobility and thereby access to such areas outside of the Area D: Ke'ehi Lagoon Beach Park area.

- c) *The council shall seek to minimize, where reasonable:*

- 1) *Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;*

Two guideway support columns will be constructed in Moanalua Stream and will impact approximately 0.004 acre below the stream's ordinary high water mark. To avoid these impacts, different bridge types would be needed to clear span the 300-foot-wide stream. This stream is wider than the practical length limit for precast concrete girders (150 feet). Long spans to cross this stream could add \$5 million to total project costs. In addition there are multiple bridge crossings of Moanalua Stream in this area with support columns in the water, including Kamehameha Highway,

the H-1 Freeway, and Nimitz Highway. The guideway columns will be aligned with the upstream viaduct piers, as feasible, to minimize obstruction of stream flow. This area is tidal and near the stream mouth at Ke'ehi Lagoon. Placement of the piers is not expected to have any consequences on the Moanalua estuarine environment or its fauna.

- 2) *Any development which would reduce the size of any beach or other area usable for public recreation;*

In the Area D: Ke'ehi Lagoon Beach Park area, the Project will not reduce or impact any beaches and will not significantly reduce areas usable for public recreation. The Project will coordinate with KMO-DAV to ensure that it results in a net benefit for access to the memorial and recreational area. Therefore, there will be no permanent loss to public recreation facilities within the SMA area.

- 3) *Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will not result in any reductions or restrictions on public access to tidal and submerged lands, beaches, portions of rivers and streams within the SMA, and the mean high tide line where there is no beach. Moanalua Stream will be directly impacted by the Project, but those impacts are not expected to be adverse; access to the stream will be maintained. Public access to the shoreline in this area will not be reduced or restricted by the Project, due to the distance between the fixed guideway and the shoreline.

- 4) *Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will require the installation of the guideway and columns along the park's existing driveway and parking lot. Views of Honolulu Harbor and the park are already obstructed by the Nimitz Highway and H-1 Freeway interchange. Overall, the Project has minimized its visual intrusion to the extent possible.

An evaluation of the SMA Coastal Views is provided in Section 4.8 of the Final EIS (Attachment 1; page 4-103). This section states "The portion of the guideway that will run along the makai side of Nimitz Highway and the mauka side of the SMA boundary is between Lagoon Drive near Honolulu International Airport and Kalihi. In this area, the alignment will be along the mauka edge of Ke'ehi Lagoon Beach Park and closely follow Nimitz Highway and the H-1 Freeway. Figure 4-27 illustrates where the guideway will be in relationship to the roadway. There will be moderate impacts on makai views of the shoreline from these state highways."

- 5) *Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.*

The portion of the Project within the Area D: Ke'ehi Lagoon Beach Park area will not adversely affect water quality in this area. Section 4.14 and 4.18.10 of the Final EIS (Attachment 1) discuss BMPs to be employed during operation and construction of the Project, respectively, to limit water quality impacts. Though Moanalua Stream will be directly impacted due to the placement of two columns in the stream, there will be no adverse effects due to the use of temporary and permanent BMPs. In addition, this stream already contains visible structures and modifications. The Project will not have an adverse impact on Ke'ehi Lagoon in this area due to the distance between the guideway and the coast. Existing and potential fishing grounds are likely coastal or associated with the stream or coastline; there shall be no interference with these areas due to the Project. The Project will not have an adverse effect on any wildlife habitats or potential or existing agricultural uses of land, as it will be constructed in an area used for open space and surrounded by a commercially-developed area unlikely to be used for agriculture.

## V. MITIGATION MEASURES

The Project Mitigation Monitoring Program is included as Attachment 4.

Attachment D: SMA Plans

- D-00 to D-06: SMA Line Plan Sheets
- D-FZ: Flood Zones
- D-HR: Historic Resources

---

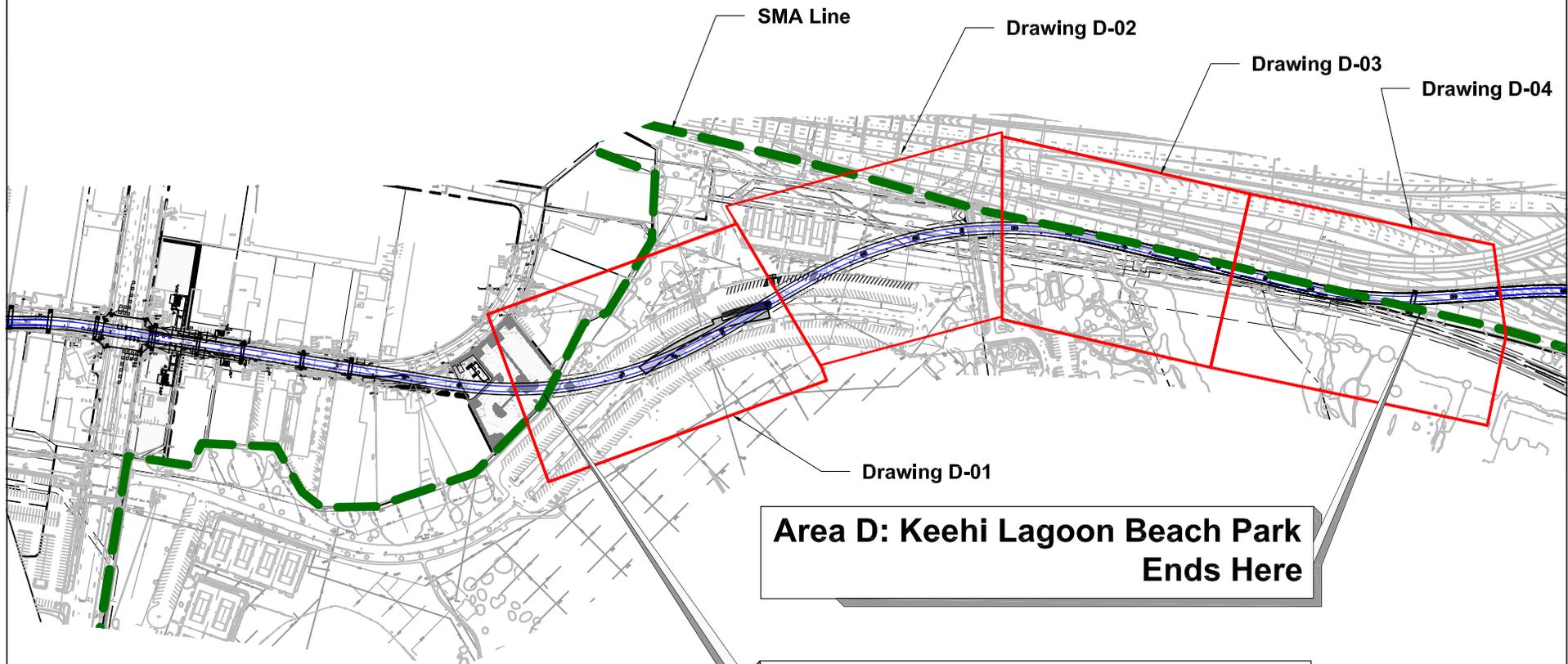
# Special Management Area Use Permit and Shoreline Setback Variance Application

## Attachment D: Area D SMA Plans

**Honolulu Rail Transit Project**  
June 2013

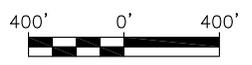
---





**Area D: Keehi Lagoon Beach Park  
Ends Here**

**Area D: Keehi Lagoon Beach Park  
Starts Here**

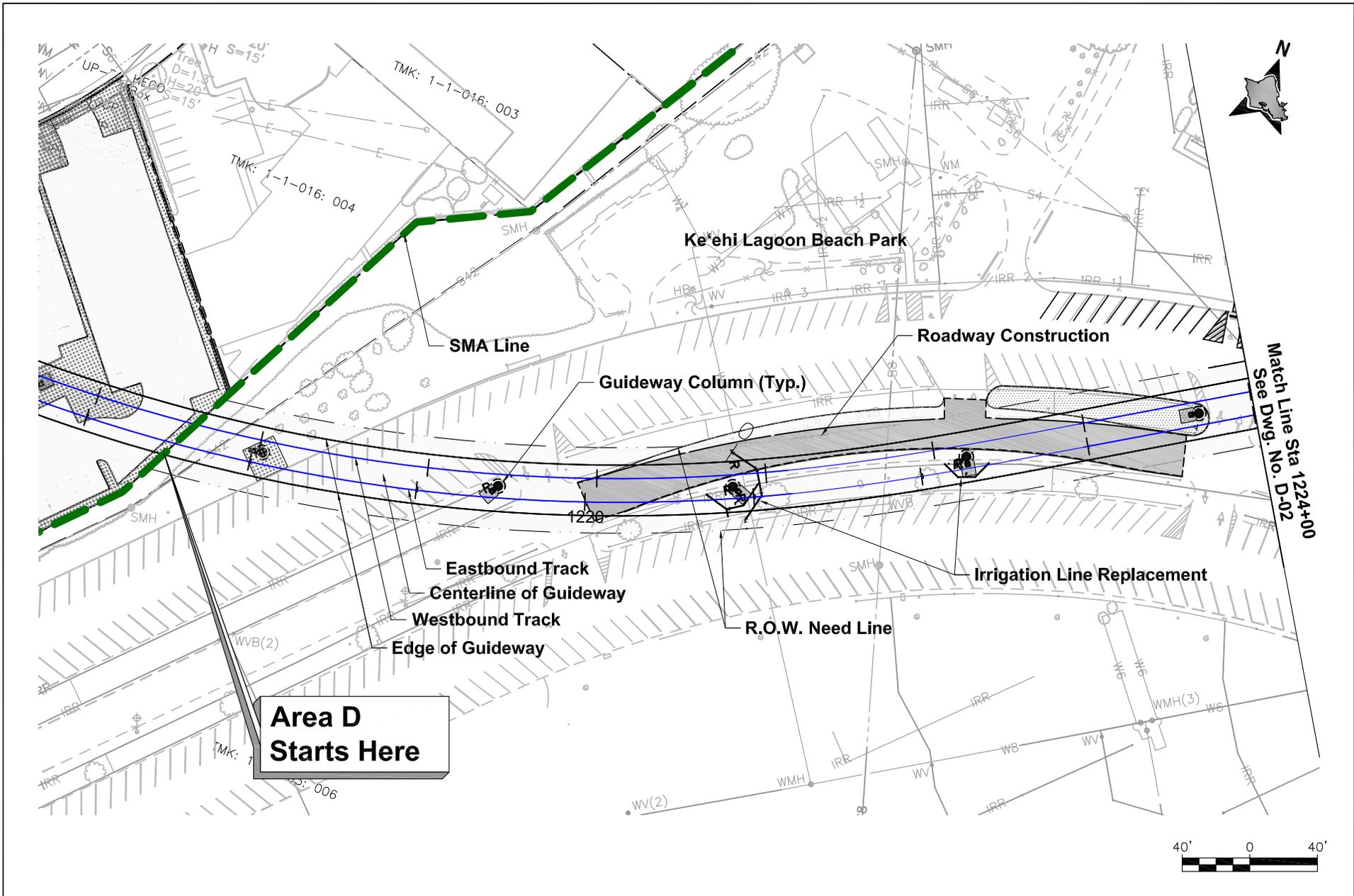


**HONOLULU  
RAIL TRANSIT PROJECT**

SPECIAL MANAGEMENT AREA  
**AREA D  
OVERVIEW**

STA 1217+60± TO STA 1240+00±

Drawing No:  
**D-00**  
Date:  
05-20-2013



**HONOLULU  
RAIL TRANSIT PROJECT**

**SPECIAL MANAGEMENT AREA  
AREA D  
PLAN**

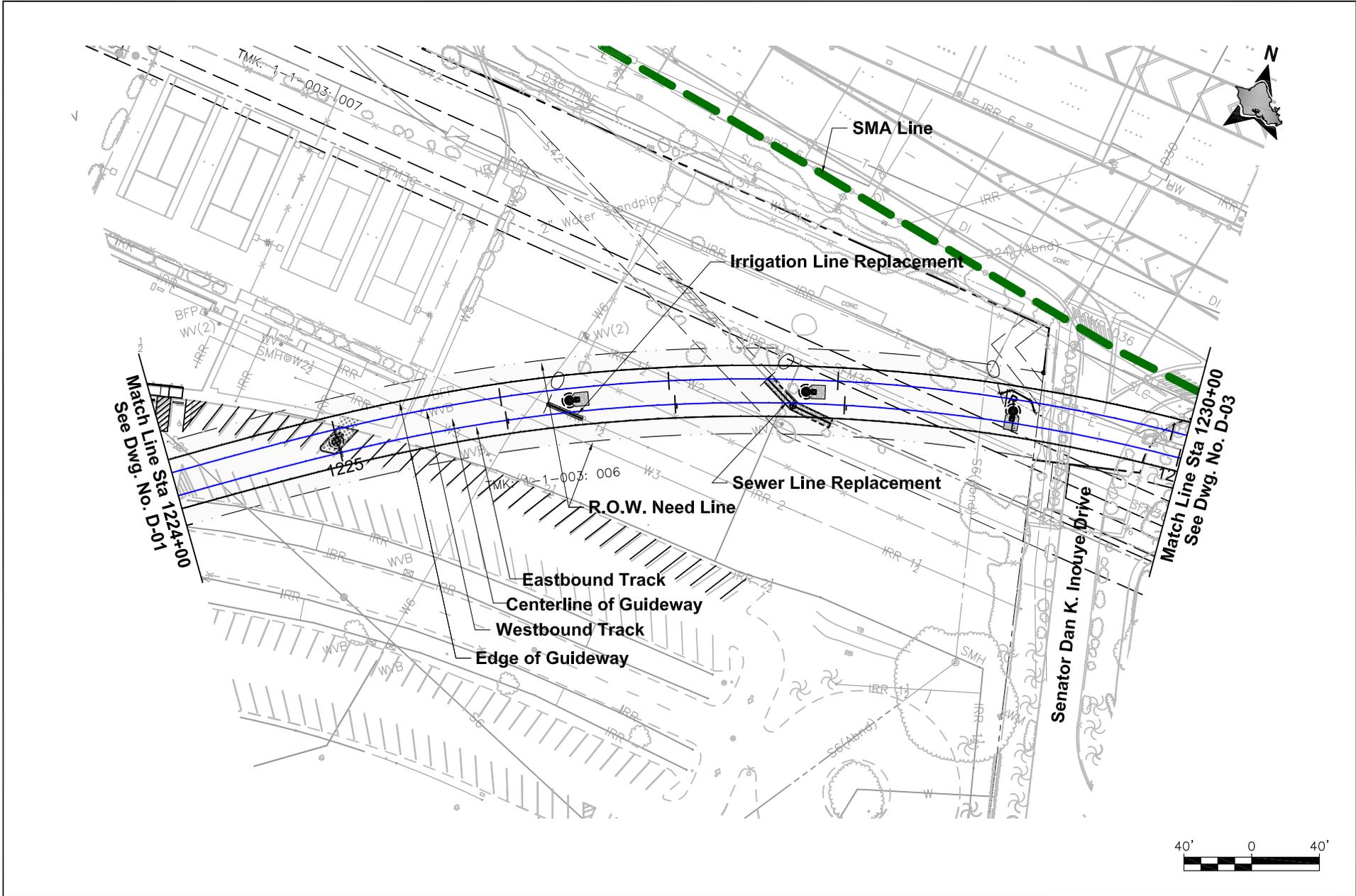
STA 1217+60± TO STA 1224+00

Drawing No:

**D-01**

Date:

05-20-2013

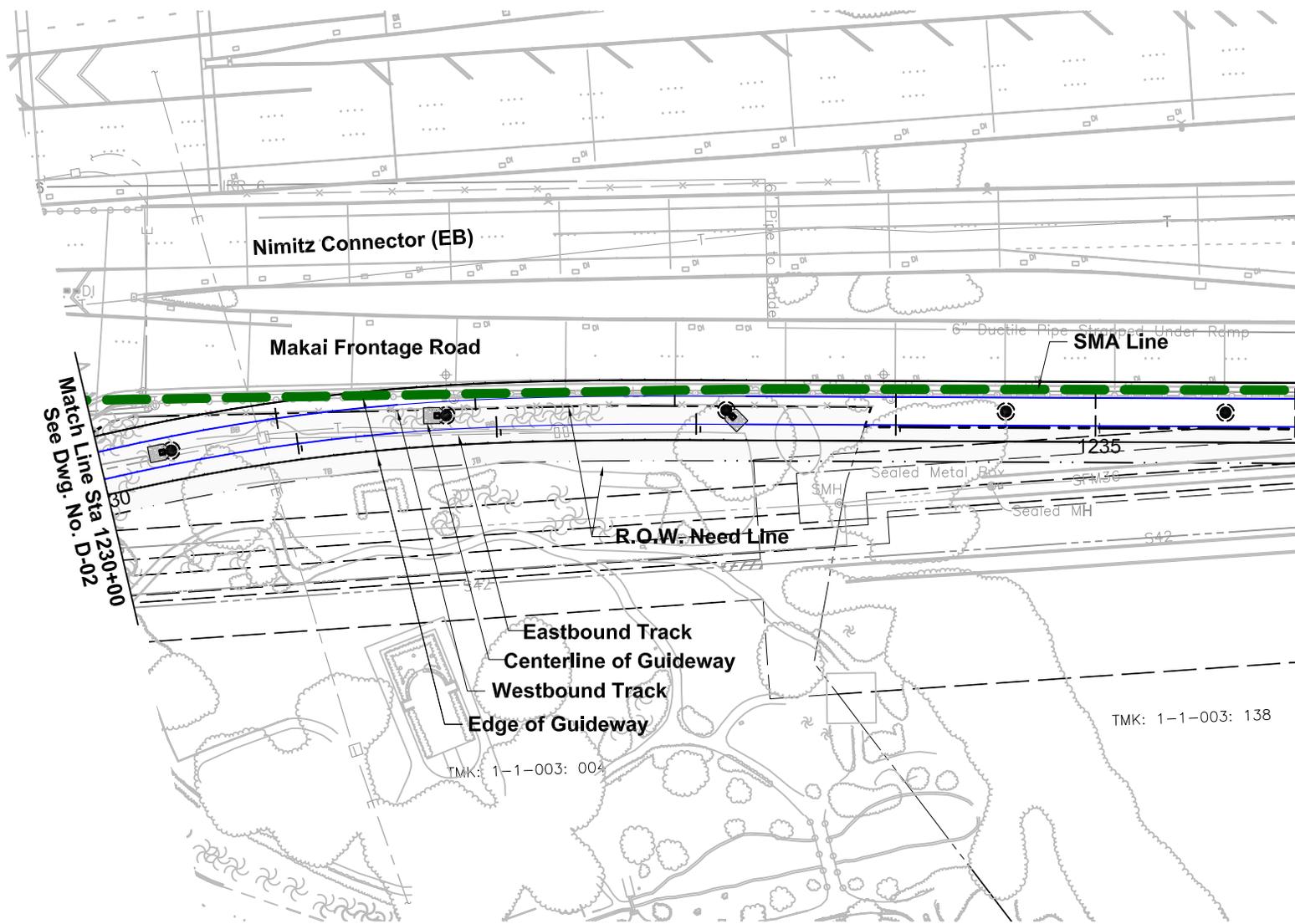


**HONOLULU  
RAIL TRANSIT PROJECT**

SPECIAL MANAGEMENT AREA  
**AREA D  
PLAN**

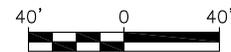
STA 1224+00 TO STA 1230+00

Drawing No:  
**D-02**  
Date:  
05-20-2013



Match Line Sta 1230+00  
See Dwg. No. D-02

Match Line Sta 1236+00  
See Dwg. No. D-04



### HONOLULU RAIL TRANSIT PROJECT

### SPECIAL MANAGEMENT AREA AREA D PLAN

STA 1230+00 TO STA 1236+00

Drawing No:

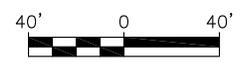
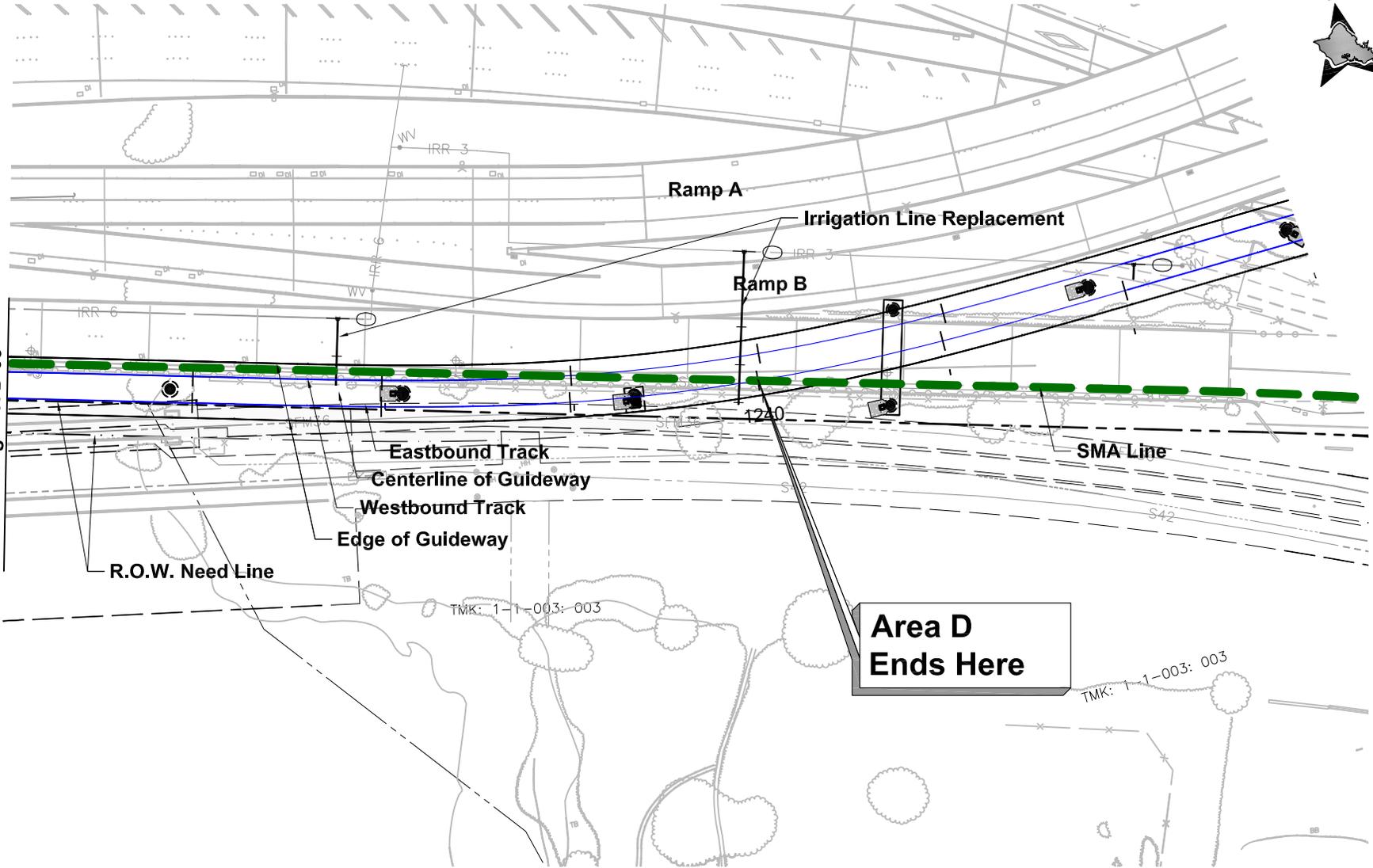
**D-03**

Date:

05-20-2013



Match Line Sta 1236+00  
See Dwg. No. D-03



**HONOLULU  
RAIL TRANSIT PROJECT**

SPECIAL MANAGEMENT AREA  
**AREA D  
PLAN**

STA 1236+00 TO STA 1240+00

Drawing No:  
**D-04**

Date:  
05-20-2013



SMA Line

Historic Resource:  
Hawai'i Employers Council

Area D: Keehi Lagoon Beach Park  
Ends Here

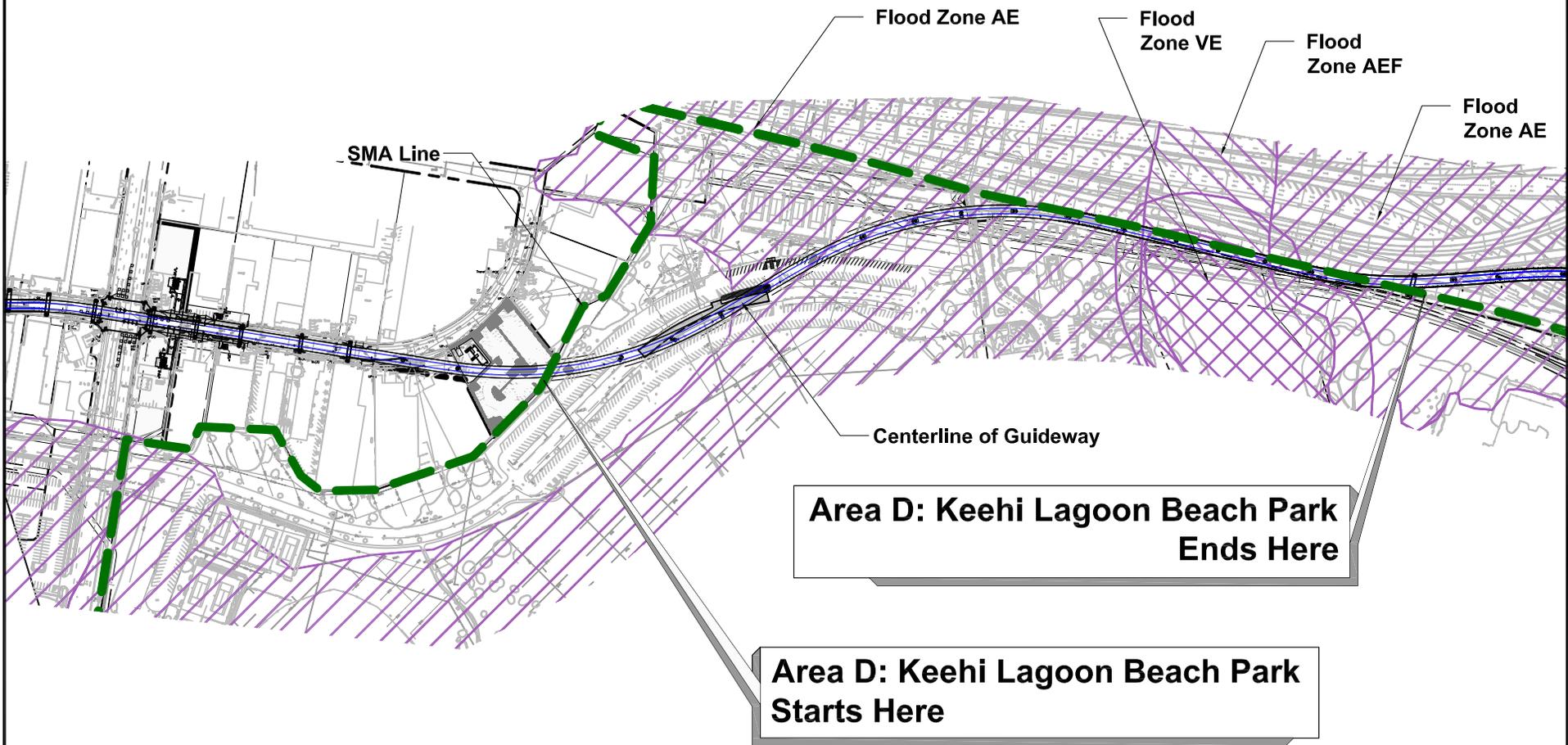
Area D: Keehi Lagoon Beach Park  
Starts Here



HONOLULU  
RAIL TRANSIT PROJECT

SPECIAL MANAGEMENT AREA  
AREA D  
HISTORIC RESOURCES  
STA 1217+60± TO STA 1240+00

Drawing No:  
**D-HR**  
Date:  
05-20-2013



HONOLULU  
RAIL TRANSIT PROJECT

SPECIAL MANAGEMENT AREA  
AREA D  
FLOOD ZONES (2011)  
STA 1217+60± TO STA 1240+00

Drawing No:  
**D-FZ**  
Date:  
05-20-2013